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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,618	09/21/2001	Koichi Otsuki	MES1P047	4302

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EXAMINER

NGUYEN, LAM S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,618

Applicant(s)

OTSUKI, KOICHI

Examiner

LAM S NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-15, 19-27, 30, 33-36, 39 is/are rejected.
- 7) ☒ Claim(s) 12, 16-18, 28, 29, 31, 32, 37, 38, 40 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: The term “sub-scanning sub-scanning” on line 15 should be rewritten by “sub-scanning”. Appropriate correction is required.

Claim 2 is objected to because of the following informalities: The term “sun-scan” on line 5 page 86 should be rewritten by “sub-scan”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

1. Claims 1, 2, 4-6, 8, 9, 19, 20, 22, 23, 25, 33-36 are rejected under 35 U.S.C. 102(e) as being obvious by Meyer (US 6239817).

Meyer discloses a dot-recording device for recording ink dots on a surface of a print medium (FIG. 5, element 16) with the aid of a dot-recording head (FIG. 4B, element 26) provided with a plurality of dot-forming elements (FIG. 4B, element 27) for ejecting ink droplets, the dots recording device comprising:

a main scanning unit configured to drive the dot-recording head and/or the print medium to perform main scanning (FIG. 1, elements 26, 27, 64);

a head driver configured to drive at least some of the dot forming elements to form dots during the main scanning (FIG. 7: the corresponding head driver drives the dot forming elements 127 to overspray the trailing edges 148 (column 5, line 66-67));

a platen (FIG. 5, element 30) configured to extend in the main scanning direction (FIG. 5, element 4) and to be disposed opposite the dot-forming elements (FIG. 4B, element 27) at least along part of a main scan path, and the platen being configured to support the print medium at a position opposite the dot-recording head;

a sub-scanning unit (FIG. 4B, elements 20 and 25) configured to move the print medium to perform sub-scanning in between the main scans; and

a controller configured to control the dot recording device, wherein the platen has a slot (FIG. 5, element 40) extending in the main scanning direction a width of the slot in the sub-scanning direction corresponding to a specific sub-scanning range on a surface of the dot recording head including at least part of the plurality of dot-forming elements.

Referring to claims 2 and 20: wherein the specific sub-scanning range includes at least one of two end ranges in the sub-scanning at opposite ends of the dot-recording head, each end range including at least one dot-forming element, and wherein the controller has:

(a) a first recording mode to effect printing near an edge of the printing medium (in term of “a borderless mode”) (column 3, line 36), in the first recording mode the controller performing edge printing by ejecting ink droplets from at least some of the dot-forming elements disposed opposite the slot when the print medium is supported on the platen, and the edge of the print medium is disposed above the slot (FIG. 4A), and

(b) a second recording mode to effect printing in an intermediate portion of the

print medium (in term of “a margin mode”) (column 3, line 36), a maximum sub-scan feed amount in the second recording mode being greater than a maximum sun-scan feed amount in the first recording mode.

Referring to claims 4 and 22: wherein the slot is disposed at a position opposite a dot-forming element that is located at a downstream edge in the sub-scanning direction; and the controller performs the edge printing when a front edge of the print medium is disposed above the slot (FIG. 4A).

Referring to claims 5 and 23: wherein the slot is disposed at a position opposite a dot-forming element that is located at an upstream edge in the sub-scanning direction; and the controller performs the edge printing when a rear edge of the print medium is disposed above the slot (FIG. 7).

Referring to claim 6: wherein the sub-scanning unit comprises:

an upstream sub-scanning unit configured to hold and move the print medium, the upstream sub-scanning unit being disposed on an upstream side in the sub-scanning direction with respect to the dot-recording head (FIG. 4b, elements 20 and 25); and

a downstream sub-scanning unit configured to hold and move the print medium, the downstream sub-scanning unit being disposed on a downstream side in the sub-scanning direction with respect to the dot-recording head (FIG. 7, element 102).

Referring to claims 8 and 25: wherein the controller performs the edge printing on the basis of image data representing an image extending outside the print medium beyond the edge on which the edge printing is performed (FIG. 4A, the distance D1, and FIG. 7, the distance d).

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Referring to claim 9: wherein a length of an area of the image outside the print medium is set less than the slot width (FIG. 4A and FIG. 7: the distances D1 and d are less than the slot width of element 30).

Referring to claim 14: wherein the platen comprises:

a first support (FIG. 5, elements 78-82) configured to support the print medium, the first support extending in the main scanning direction at a position opposite a first sub-group of dot-forming elements selected from the plurality of dot-forming elements;

a first slot (FIG. 5, element 40) extending in the main scanning direction at a position opposite a second sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the first sub-group of dot-forming elements;

a second support (FIG. 5, elements 90-94) configured to support the print medium, the second support extending in the main scanning direction at a position opposite a third sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the second sub-group of dot-forming elements.

2. Claims 1-11, 13-15, 19-27, 30, 33-36, and 39 are rejected under 35 U.S.C. 102(e) as being obvious by Kodama (EP 1043166A2).

Kodama discloses a dot-recording device for recording ink dots on a surface of a print medium (FIG. 1, element 4) with the aid of a dot-recording head (FIG. 1, element 1) provided with a plurality of dot-forming elements (FIG. 1, element 2) for ejecting ink droplets, the dots recording device comprising:

a main scanning unit configured to drive the dot-recording head and/or the

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print medium to perform main scanning (FIG. 5: the corresponding unit moves the printhead 1 in the main scanning direction);

a head driver configured to drive at least some of the dot forming elements to form dots during the main scanning (FIG. 1, element 23);

a platen (FIG. 1, element 13) configured to extend in the main scanning direction and to be disposed opposite the dot-forming elements at least along part of a main scan path, and the platen being configured to support the print medium at a position opposite the dot-recording head;

a sub-scanning unit (FIG. 1, elements 8 and 9) configured to move the print medium to perform sub-scanning in between the main scans; and

a controller configured to control the dot recording device, wherein the platen has a slot (FIG. 1, elements 12 and 13) extending in the main scanning direction a width of the slot in the sub-scanning direction corresponding to a specific sub-scanning range on a surface of the dot recording head including at least part of the plurality of dot-forming elements.

Referring to claims 2 and 20: wherein the specific sub-scanning range includes at least one of two end ranges in the sub-scanning at opposite ends of the dot-recording head, each end range including at least one dot-forming element (FIG. 1 and FIG. 2), and wherein the controller has:

(a) a first recording mode to effect printing near an edge of the printing medium (FIGs. 1-6), in the first recording mode the controller performing edge printing by ejecting ink droplets from at least some of the dot-forming elements disposed opposite the slot when the print

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medium is supported on the platen, and the edge of the print medium is disposed above the slot, and

(b) a second recording mode to effect printing in an intermediate portion of the print medium, a maximum sub-scan feed amount in the second recording mode being greater than a maximum sub-scan feed amount in the first recording mode (FIG. 28).

Referring to claim 3 and 21: wherein the controller prevents ink droplets from being ejected by dot-forming elements other than the dot-forming elements disposed opposite the slot during the edge printing (FIGs. 1-4).

Referring to claims 4 and 22: wherein the slot is disposed at a position opposite a dot-forming element that is located at a downstream edge in the sub-scanning direction; and the controller performs the edge printing when a front edge of the print medium is disposed above the slot (FIG. 1).

Referring to claims 5 and 23: wherein the slot is disposed at a position opposite a dot-forming element that is located at an upstream edge in the sub-scanning direction; and the controller performs the edge printing when a rear edge of the print medium is disposed above the slot (FIG. 2).

Referring to claim 6: wherein the sub-scanning unit comprises:

an upstream sub-scanning unit (FIG. 1, element 8) configured to hold and move the print medium, the upstream sub-scanning unit being disposed on an upstream side in the sub-scanning direction with respect to the dot-recording head; and

a downstream sub-scanning unit (FIG. 1, element 9) configured to hold and move

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the print medium, the downstream sub-scanning unit being disposed on a downstream side in the sub-scanning direction with respect to the dot-recording head.

Referring to claims 7, 24: wherein the sub-scanning of the first recording mode is performed in a feed amount corresponding to a single dot pitch in the sub-scanning direction (FIG. 43).

Referring to claims 8 and 25: wherein the controller performs the edge printing on the basis of image data representing an image extending outside the print medium beyond the edge on which the edge printing is performed (FIGs.1-4).

Referring to claim 9: wherein a length of an area of the image outside the print medium is set less than the slot width (FIGs. 1-4).

Referring to claims 10 and 26: wherein the platen has:

an upstream slot (FIG. 1, element 13) that extends in the main scanning direction at a position opposite a dot-forming element disposed at an upstream edge of the dot-recording head in the sub-scanning direction

a downstream slot (FIG. 1, element 11) that extends in the main scanning direction at a position opposite a dot-forming element disposed at a downstream edge of the dot recording head in the sub-scanning direction.

The controller comprises a print data storage unit which stores print data partially composed of image data for recording images in an expanded area that extends lengthwise beyond at least the front and rear edges of the print medium (The corresponding memory stores the print data to be printed in FIG 1 and FIG 2); and an edge printing unit that ejects ink droplets onto the expanded area on the basis of the print data.

Referring to claims 11, 27, 36: wherein the controller comprises:

an upper-edge positioning unit (FIG. 1: the element is between element 8 and element 13) which selects the position of the print medium in the sub-scanning direction such that when ink droplets are ejected onto the front edge of the print medium, the print medium is supported on the platen, the front edge of the print medium is brought to a point above the downstream slot, and the front edge reaches a point located in the sub-scanning direction upstream of the dot-forming element on the downstream edge in the sub-scanning direction; and

a lower-edge positioning unit (FIG. 1, element 3) which selects the position of the print medium in the sub-scanning direction such that when ink droplets are ejected onto the rear edge of the print medium, the print medium is supported on the platen, the rear edge of the print medium is brought to a point above the upstream slot, and the rear edge of the print medium reaches a point located in the sub-scanning direction downstream of the dot-forming elements on the upstream edge in the sub-scanning direction.

Referring to claims 13, 30, 35, 39: wherein the print data includes information about a recording condition of dots in pixels in the expanded areas (FIG. 43, the section EXPANDED PRINTING SPECIFICATION OF NOZZLES TO BE USED PLATEN).

Referring to claim 14: wherein the platen comprises:

a first support (FIG. 31: the element opposites to element 2a) configured to support the print medium, the first support extending in the main scanning direction at a position opposite a first sub-group of dot-forming elements selected from the plurality of dot-forming elements;

a first slot (FIG. 31, element 27) extending in the main scanning direction at a

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position opposite a second sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the first sub-group of dot-forming elements;

a second support (FIG. 31, the element opposites to element 2b) configured to support the print medium, the second support extending in the main scanning direction at a position opposite a third sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the second sub-group of dot-forming elements.

Referring to claim 15: wherein the platen comprises:

a first support (FIG. 31, the element between slot 26 and slot 27) configured to support the print medium, the first support extending in the main scanning direction at a position opposite a first sub-group of dot-forming elements (FIG. 31, element 2a) selected from the plurality of dot-forming elements;

a first slot (FIG. 31, slot 27) extending in the main scanning direction at a position opposite a second sub-group of dot-forming elements (FIG. 31, element 30) which are disposed in the sub-scanning direction downstream from the first sub-group of dot-forming elements;

a second support (FIG. 31, the element between slot 27 and 28) configured to support the print medium, the second support extending in the main scanning direction at a position opposite a third sub-group of dot-forming elements (FIG. 31, element 2b) which are disposed in the sub-scanning direction downstream from the second sub-group of dot-forming elements; and

a second slot (FIG. 31, element 28) extending in the main scanning direction at a

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position opposite a fourth sub-group of dot-forming elements (FIG. 31, element 2c) which are disposed in the sub-scanning direction downstream from the third sub-group of dot-forming elements.

Referring to claim 33: an image data generator for generating image data for an area outside the print medium beyond the edge on which the edge printing is performed (FIG. 1: a corresponding data generator generates the print data for the element NOZZLE DRIVE CONTROL SECTION to drive the dot-printing elements).

Allowable Subject Matter

3. Claims 12, 16-18, 28, 29, 31, 32, 37, 38, 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claims 12, 28, 37: The most pertinent arts Meyer (US 6239817) and Kodama (EP 1043166A2) fail to disclose wherein the platen further has a pair of lateral slots separated apart at a distance substantially equal to a width of the print medium, the lateral slots extending in a sub-scanning range in which ink droplets are ejected from the plurality of dot-forming elements; and the dot-recording device further comprises a guide for positioning the print medium in the main scanning direction such that the print medium is supported on the platen, and that the two edges of the print medium are kept at positions above the corresponding lateral slots. Therefore, the claimed invention is not disclosed in the prior arts.

Referring to claims 16, 31, 40: The most pertinent arts Meyer (US 6239817) and Kodama (EP 1043166A2) fail to disclose wherein the controller has a first image printing mode in which dots are formed on the print medium with the aid of the second to fourth sub-groups of

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dot forming elements without the use of the first sub-group of dot-forming elements, thereby printing images without blank spaces up to front and/or rear edges of the print medium; and a second image printing mode in which dots are formed on the print medium with the aid of the first to fourth sub-groups of dot forming elements, thereby printing images with blank spaces along the front and rear edges of the print medium. Therefore, the claimed invention is not disclosed in the prior arts.

Referring to claims 17, 18, 29, 32, 38: Allowable since their dependence on the allowable claims.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BARLOW can be reached on (703)308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

August 20, 2002


RAQUEL GORDON
PRIMARY EXAMINER